June 1995

Racial Disparities in Reported Smoking Cessation Advice From Physicians

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RACIAL DISPARITIES IN REPORTED SMOKING CESSATION ADVICE FROM PHYSICIANS

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B.S., University of Connecticut, 1992

A Thesis
Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Public Health
at
The University of Connecticut
1995

APPROVAL PAGE

MASTER OF PUBLIC HEALTH THESIS

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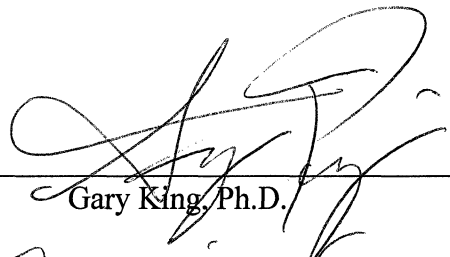
Major Adviser 
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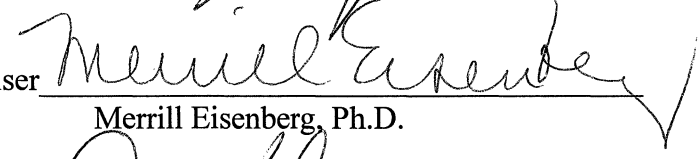
Associate Adviser 
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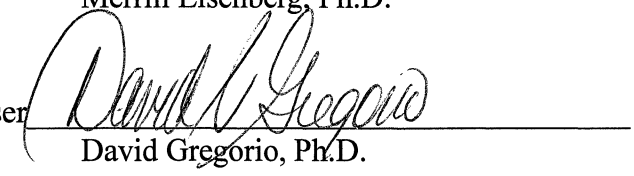
Associate Adviser 
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1995

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

INTRODUCTION

Cigarette smoking is a significant public health problem. The number of deaths resulting from tobacco use is greater than the combined effects of AIDS, suicide, homicide, alcoholism, cocaine, heroin, traffic accidents and fire (Solberg, 1990). Trends indicate that the prevalence of cigarette smoking has been decreasing over the past 25 years, however, a large percentage of the population still smokes (CDC, 1994). It is important to continue to target current smokers and potential smokers to decrease the economic and health burden that cigarette smoking places on our society.

With over 70% of the U.S. population visiting a physician at least annually (National Cancer Institute (NCI), 1994), the doctor patient relationship becomes an ideal setting for imparting smoking cessation advice. Studies have shown that smokers are quite receptive to the advice from physicians to stop smoking (Folsom, 1987; Janz, 1987). While most physicians would agree that smoking cessation is very important to the health of their patients, studies show that many people never receive advice to stop smoking from their physicians (Anda, 1987; NCI, 1994). Differences exist when this advice is analyzed by race. Evidence suggests that blacks are less likely than whites to report receiving advice from their physician about smoking cessation (NCI, 1994).

The failure to provide smoking cessation advice without bias across racial groups may not be an isolated incident of racial inequity in health care. Studies have documented provider controlled differences in health care treatment between blacks and whites (Goldberg, 1992; Johnson, 1993; Kogan, 1994; Maynard, 1991; Wenneker, 1989).

These differences occur in both expensive high technology care and less expensive prevention counseling.

Why does racial bias exist in health care delivery? The health care system is not insular. It harbors racial bias that must be viewed within the context of outside social forces. Class theory and institutional racism have been offered as explanations of the differences in treatment of blacks and whites in the health care system.

Class theory suggests that differential treatment patterns are due to differences in socioeconomic status rather than race (Kreiger, 1986). Thus, blacks and whites of the same socioeconomic classes should be subject to the same bias in treatment. This theory is limited in its ability to explain differences in treatment between blacks and whites because many studies have shown that race is a greater predictor of receiving treatment after controlling for socioeconomic status (Escarce, 1993; Kogan, 1994).

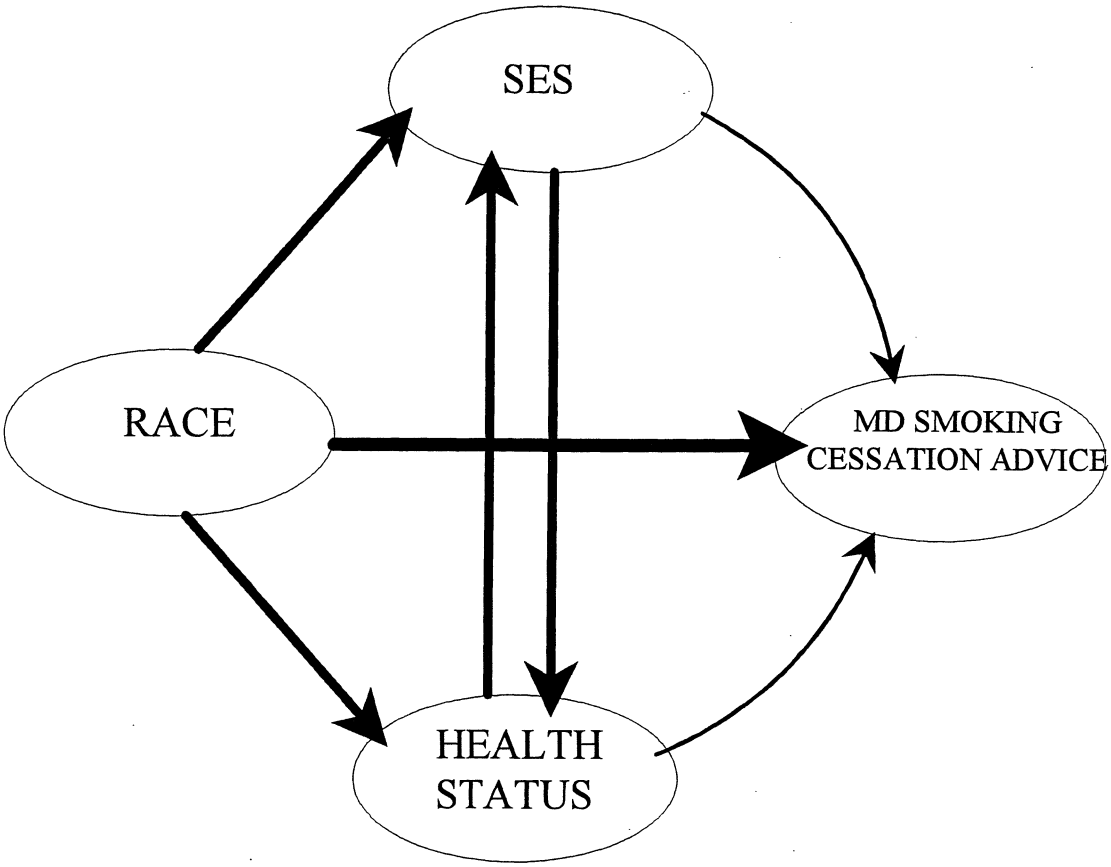
Institutional racism suggests that differences in treatment may in fact be due to differences in race. The differences in the treatment of blacks and whites may not be due to overt racism but may be a form of covert racism evident in many institutions of society including the health care system (King, 1995). This theory maintains that, rather than individual discrimination, it is the historical traditions, structure, organization and policies of the institutions which perpetuate racial inequity that may be the cause of differential treatment (King, 1995). Institutional racism also incorporates the concept of social class as an explanatory component of racial injustice in the medical field. The historical stratification of blacks and whites across economic lines initiated by the slave system is perpetuated by many institutions today (Butsch, 1978). This causes blacks to be

disproportionately concentrated in the lower socioeconomic strata of society (Kreiger, 1986). Thus, unlike class theory, the concept of institutional racism recognizes the historical indications of why blacks of all socioeconomic classes may be treated differently than whites in the health care system.

In this thesis, it is the author's intent to examine any disparities that exist in the self reports of black and white current smokers about receiving smoking cessation advice from a physician within the context of the theories mentioned above. I will statistically examine the effects of the demographic, socioeconomic and health characteristics of current smokers on receiving smoking cessation advice. Specifically, I will investigate the combined and independent effects of socioeconomic status (SES) and race. In summary, it is suggested that the combined effects of race, SES and health status affect the amount and type of contact with the health care field and therefore help to explain differences between blacks and whites in reported smoking cessation advice from physicians (Figure 1).

FIGURE 1

FACTORS AFFECTING SMOKING CESSATION ADVICE FROM PHYSICIANS



LITERATURE REVIEW

The Burden of Cigarette Smoking

For over two decades it has been clear that cigarette smoking is the most preventable cause of premature illness and death in the United States. Tobacco claims the lives of approximately 400,000 individuals each year in the United States (U.S. Department of Health and Human Services (USDHHS), 1990). Many of these deaths are due to cancer of the lungs, esophagus, larynx, pharynx, oral cavity, pancreas, kidney and bladder (U.S. Prevention Task Force (USPRTF), 1989). By promoting atherosclerosis, smoking is also a leading risk factor for myocardial infarction and coronary artery disease (USPRTF, 1989). Tobacco can also be attributed to many deaths from lung diseases such as chronic obstructive pulmonary disease, pneumonia, and emphysema (USPRTF, 1989). Cigarette smoking during pregnancy can cause low birth weight infants, miscarriage, shortened gestational period, respiratory distress syndrome and infant death syndrome (USPRTF, 1989). The negative effects of smoking are not limited to smokers. Approximately 4,000 deaths per year from lung cancer in non-smokers are caused by passive smoking (USPRTF, 1989). Many fire-related injuries and deaths are caused by smoking each year (USPRTF, 1989). The cost of these health problems and the related lifestyle and social problems places a significant economic burden on the health care system (McGinnis, 1993).

Smokers of all ages can make a positive impact on their health by quitting smoking. Considerable increases in life expectancy are observed in people who quit

smoking because the risk of dying from smoking related diseases decreases. People who quit experience a steady decline in the risk of lung cancer. After they have abstained from smoking for ten years, their risk of dying from lung cancer is 30 to 50% the risk of people who continue to smoke (USDHHS, 1990). After one year of smoking cessation the risk of mortality from heart disease is reduced by 50% (NCI, 1994). The risk is comparable to those who have never smoked after 15 years of cessation (NCI, 1994).

The prevalence of smokers in the U.S. has decreased since the 1960's when 41% of all adults smoked (Fiore, 1992). The most recent figures from the 1993 National Health Interview Survey, Year 2000 Health Objectives Supplement indicate that despite all of the negative health and economic effects of smoking, approximately 26% of the population, age 18 and older, continues to smoke (CDC, 1994). The importance in maintaining this decreasing trend has been recognized by the Healthy People 2000 objectives. One of the main goals is to decrease the number of smokers age 20 and older to 15% or less by the year 2000 by decreasing the number of current smokers and the number of people who initiate smoking (USDHHS, 1991).

Physicians Role in Smoking Cessation

Until the negative consequences from smoking were widely known in the 1950's, the physician image was used in cigarette advertisements to promote and even endorse health benefits of cigarette smoking (NCI, 1994). The first campaign against smoking by the U.S. Public Health Service targeted physician smoking habits. Physicians did not take a role in helping their patients to stop smoking until the 1960's and 1970's.

Today most physicians report that smoking cessation is the most important thing their patients can do for their health. A survey of primary care practitioners found that 93% of physicians rated smoking cessation counseling as the most important health promotion activity they could do with their patients (Wechsler, 1983). However, studies indicate that physician practice patterns do not correlate with the recommended guidelines for preventive medicine activities (Lurie, 1987). Studies also show that discrepancies exist between physicians who report administering smoking cessation advice and patients' perceptions of receiving advice. A study by Anda, et al (1987) showed that only 45% of the population reported that they have received advice from their physician to stop smoking. The 1987 National Health Interview Survey data revealed that 50.9% of the population reported receiving advice from their physician to stop smoking (NCI, 1994). However, a study of family physicians showed that 97.5% of physicians reported that they advise their patients to stop smoking (Bredfeldt, 1990).

The discrepancy could be due to overreporting by physicians. Pommerenke (1991) observed that physicians overestimate the amount of smoking cessation advice they actually give. On the other hand, patients may not always perceive intended smoking cessation advice as such. In one study, only 60% of 258 patients recalled receiving documented physician delivered advice to quit smoking (Folsom, 1987).

When smokers were asked to report what the most significant motivator to influence them to quit smoking would be, they ranked physician advice higher than regulations, increased tobacco tax, and family pressure (Solberg, 1990). Owen (1990) reported that 67% of smokers indicated that they would rather receive advice from a

health professional regarding smoking cessation compared to other means of help. It is estimated that 80 to 90% of patients want to stop smoking (NCI, 1994) and approximately 70% of current smokers see a physician annually (Glynn, 1988). Thus, the doctor patient relationship is an ideal environment for the delivery of smoking cessation advice to address the Healthy People 2000 objectives.

The benefits of brief smoking cessation advice can be enormous. "If only half of all US physicians gave brief advice to their patients about smoking cessation and were successful in only 10% of the cases, 2 million people would quit smoking each year" (Glynn, 1988). In a study by Janz (1987), physician recommendations for smoking cessation advice lasting less than 5 minutes resulted in a 15% quit rate. A summary of 28 physician-based smoking cessation studies revealed that advice or counseling alone resulted in patient quit rates of 20 to 25% (Schwartz, 1987).

Pommerenke (1991) also reported that smoking status was not recorded by most physicians even though studies show that the quit rate is higher among patients who are merely asked if they smoked. Physicians often report lack of time, forgetfulness (McPhee, 1987), or the need to focus on the patient's chief complaint (Pommerenke, 1991) for reasons they do not give smoking cessation advice. Other reasons for not giving smoking cessation advice include that it is inconvenient, not practical, and not economically feasible (McPhee, 1987). Contributing to the financial barrier is the reluctance of insurance companies to pay for health maintenance services (Orlandi, 1987).

Physicians also site a lack of confidence in their ability to change the behavior of their patients. A study of barriers to giving smoking cessation advice revealed that 51% of the primary care practitioners surveyed reported they believed they would be ineffective in making an impact on the smoking behavior of their adolescent patients (Gregorio, 1994). It has been suggested that physicians may lack knowledge of the benefits of preventive medicine activities (Pommerenke, 1991). However, Brownson, et al (1993) reported that even when physicians had a high degree of knowledge about the relationship between tobacco and cancer, the amount of smoking cessation advice was low. Other barriers for the delivery of smoking cessation advice include sociocultural barriers and the lack of training that physicians receive in medical school or residency for health maintenance (Orlandi, 1987). Contributing to the sociocultural barriers may be the lack of relevance of the smoking cessation advice to sociocultural norms. Orlandi maintains that "innovations designed for the majority population may lack salience from the perspective of specific ethnic, minority or other subcultural groups".

Differences in Smoking Patterns

The sociocultural barriers may be quite relevant because differences in smoking cessation patterns have been demonstrated between majority and minority groups of our society. Blacks smoke fewer cigarettes per day, but are more likely to smoke mentholated (Sidney, 1989) and higher tar cigarettes than whites (Stotts, 1991). Blacks are also more likely to be current smokers. Data from the 1993 National Health Interview Survey showed that 26% of blacks age 18 and older were current smokers compared to 25.4% of whites. This data also revealed that 71.4% of blacks and 70.4% of whites reported that

they were interested in quitting yet only 37.8% of blacks quit smoking compared to 51.6% of whites (CDC, 1994).

A study by Vander Martin (1990) found that compared to white, Hispanic, and Asian patients who smoke, blacks reported the least pleasure from smoking, the least concern about the health risks, the greatest desire to quit, and the most confidence that they could quit. Blacks were also more likely to report that their spouse or friends smoke. The motivations for blacks to quit, however, are similar to U.S. smokers in general (Orleans, 1989). They include in order of importance: belief in the health benefits of smoking cessation, having a recent smoking illness and personal medical advice to quit smoking.

Disparities in Health Status Among Blacks and Whites

Higher rates of smoking and lower quit rates among blacks are related to the higher burden of morbidity and mortality among blacks compared to whites. Blacks have higher incidence and age-adjusted mortality rates from tobacco related cancer of the esophagus, cervix, multiple myeloma, prostate, stomach, larynx, oral cavity and pharynx, pancreas, lung and bronchus than whites (Garfinkel, 1991). They have lower 5 year survival rates (Garfinkel, 1991). Blacks also have higher rates of heart disease (Ford, 1989). One of the three major goals of the Year 2000 objectives is to reduce the disparities in health status among Americans (USDHHS, 1991).

Racial Bias in Health Care Access and Treatment

Contributing to the disparity in health status among black and white Americans are the disparities that exist in health care access and treatment between these two groups.

Based on 1986 national data, blacks had less access to health care compared to whites (Blendon, 1989). Access was measured in terms of the probability of seeing a physician in the past year, the mean number of visits in the past year and the probability of an ambulatory visit in the past year for those with a chronic illness. The gap in access to health care between blacks and whites was apparent at all income levels. Blacks were less likely to be satisfied with the way they are treated by physicians when they are ill, more dissatisfied with the care they receive when hospitalized and more likely to believe that the duration of their hospitalizations are too short (Blendon, 1989). Weissman, et al, (1991) found that patients who were black, poor, uninsured, or did not have a regular physician reported delay in care before hospitalization.

Bias has also been reported in the delivery of care for coronary artery disease (Ford, 1989; Goldberg, 1992). Data from the 1979 to 1984 National Hospital Discharge Survey revealed that among blacks and whites with similar levels of coronary artery disease, blacks had higher discharge rates, and lower rates of coronary arteriography and coronary artery bypass (CABG) surgery (Ford, 1989). Escarce, et al (1993) found these differences to persist among elderly patients. Blacks are also less likely to receive kidney transplants compared to whites (Held, 1988). Blacks, in general, are less likely to receive cancer treatment compared to whites (Garfinkel, 1991). In particular, black women are less likely to receive appropriate care for breast cancer compared to white women (Diehr, 1989).

Bias may also exist in preventive care. Data from the National Health Interview Survey showed that 28.5% of whites and 18.4% of blacks in the 1970's, and 51.5% of

whites and 39.4% of blacks in the 1980's, reported receiving advice to quit smoking from their physician (NCI, 1994). Kogan (1994) has also demonstrated that black women were less likely to report receiving prenatal care advice on alcohol, smoking and breast feeding compared to whites.

Explanations for the Racial Bias in Health Care Treatment

Differences in social class are often examined to explain differences in health care access and health care treatment among blacks and whites. Class theory maintains that the primary factor affecting differences in health care access between racial groups is socioeconomic status. Socioeconomic status is often measured in terms of some combination of education, income, and occupation (Kreiger, 1994). Individuals in the lower socioeconomic classes are likely to have a minimal amount of education, be laborers or blue collar workers and earn low wages (Navarro, 1976). Navarro asserts that persons in the upper socioeconomic classes are more likely to be well-educated (college degree or more), be white collar workers and earn substantial amounts of income. Those in the upper socioeconomic classes control the means of production (Navarro, 1976). They are able to convert their earnings into profit making resources and to accumulate wealth. They are also more likely than those in the lower socioeconomic classes to be insured, have a regular source of private health care, and have a means of transportation; therefore, they have better access to quality health care (Randall, 1993). This theory maintains that blacks and whites in the lower socioeconomic classes are at an equal disadvantage for not receiving quality treatment due to a lack of financial resources, not

because of racial inequity. Thus, access and treatment rates should be similar among blacks and whites of similar socioeconomic status.

Class theory, however, is an insufficient explanation for fully explaining the differences in treatment among blacks and whites. Class theory is weakened for the following reasons. First, many studies have shown that racial differences in health care access and treatment still exist after controlling for socioeconomic status (Blendon, 1989; Ford, 1989; Kogan, 1994). In other words, blacks and whites of the same socioeconomic status have different rates of receiving medical treatment. Secondly, even if one accepts that access to health care is dependent on economic resources, differences among blacks and whites receiving medical treatments persist after controlling for access (Diehr, 1989; Held, 1988). Lastly, class theory does not explain the differences in the distributions of blacks and whites in the different socioeconomic classes. Whites are more likely to have more education, earn more money, be white collar workers and experience intergenerational transfer of wealth compared to blacks (Williams, 1991). Thus, whites in general are more likely to possess the resources that enable them to access and receive quality medical care.

Institutional Racism

Institutional racism has also been offered as an additional explanation of the impact of race on health care. This theory includes social class, as well as, the historic traditions, laws, practices, organization, structure and the interconnectedness of institutions which contribute to racial inequality as an explanation of the differences in treatment between blacks and whites.

While social class is an important component of institutional racism, this theory maintains that removing economic barriers does not remove racial barriers to health care (Randall, 1993). "The facts of being black derive from the joint social relations of class and racism: racism disproportionately concentrates blacks into the lower social strata of the working class and further causes blacks in all class strata to be racially oppressed" (Kreiger, 1986). In comparison to whites, blacks are more likely to have less financial resources which excludes them from obtaining education, jobs and more resources which would allow them to improve their socioeconomic status (Kreiger, 1986). This effects blacks functioning in all institutions of society. For example, acquiring education from one institution is a prerequisite for obtaining a good job from another institution and thus, for obtaining health care from the medical institution (King, 1995). This lack of resources helps to perpetuate the power and dominance of the majority group in our society today (Kreiger, 1986).

The concept of race itself is a societally constructed concept that is ill-defined (Williams, 1991). "Race is not a neutral descriptive category, but a social category born of the antagonistic relation of white supremacy and black oppression" (Kreiger, 1986). Inequality is further perpetuated by established laws, customs, and practices within institutions (King, 1995). A historic example is the slave system in which whites claimed there was a genetic difference between blacks and whites in order to justify excluding blacks from all sectors of society (Butsch, 1979). "In well respected medical journals doctors debated whether blacks and whites were even the same species let alone race and proclaimed that blacks were intrinsically suited for slavery, thrived in hot climates,

succumbed less to epidemic fevers which ravaged the South and suffered extraordinary rates of insanity if allowed to live free" (Kreiger, 1986). A more recent example is the overt prejudice in the health care system that continued on a national level until the 1960's before the passage of Title VI of the 1964 Civil Rights Act (Randall, 1993). Segregated hospitals were supported by federal money for hospital construction through the Hill Burton Act. Title VI was passed to end the overt discriminatory acts leading to racially segregated health care facilities.

While many overt forms of discrimination have ended, the organizational structure and policies of many institutions continue to systematically exclude blacks and promote inequality. One example is the exclusion of blacks and other minorities from biomedical research (Cotton, 1990). Other examples include "racially neutral" policies (Watson, 1994) which do not explicitly exclude blacks but in practice have the same negative effects. Such policies include hospitals only admitting patients if they have an attending physician and only delivering babies for mothers who have received a minimum amount of prenatal care (Watson, 1994). In addition, hospitals that serve African-American communities are either closing, relocating or becoming private (Randall, 1993). While these policies do not specifically exclude blacks, they tend to affect blacks who are disproportionately concentrated in the lower classes compared to whites.

The organization and power inequity that exists in the medical field also contributes to racial inequality. "Medicine has become an institution of social control that the health care system helps promulgate the dominant ideologies of society and that the

doctor patient relationship is a major site of where these developments occur" (Waitzkin, 1984). A basic power inequality between the health professional and patient exists because the professional has knowledge that the patients do not have. Without access to this knowledge, patients are not able to achieve equitable health care and decent health which is necessary to maintaining a job and acquiring more resources (Randall, 1993). Secondly, the health care system is dominated by white physicians, other health professionals, and owners and managers of hospitals (Watson, 1994). Thus, the distribution of power, in addition to the policies and organization of the medical system, may be operating in a way that benefit the needs of white Americans (Watson, 1994).

Institutional Racism as an Explanation of Differences in Reported Smoking Cessation Advice

Differences in reported smoking cessation advice can be examined in the context of institutional racism. The unequal representation of blacks and whites in all socioeconomic classes exposes blacks to more financial barriers than whites. Financial barriers include an inability to pay for care or a lack of health insurance. Also contributing to the differences are the traditions, practices and structure of the medical system which may cause blacks to be more likely to face organizational barriers to health care compared to whites (Escarce, 1993). Such organizational barriers include "long waiting times, less satisfactory doctor-patient relationship and less continuity of care" (King, 1995). Blacks may also be more likely to receive their care in public or non-private health settings which tend to be underfunded and overcrowded (Rice, 1987). By

not offering blacks smoking cessation advice at the same rates as whites, physicians may not be overtly discriminating against blacks. However, they may be functioning within an institution which perpetuates racial inequity and consequently has equally detrimental effects on the health of black Americans.

METHODS

The National Health Interview Survey (NHIS) data used for this research project were obtained from the National Center for Health Statistics (NCHS) through a cooperative data use agreement with the University of Connecticut Health Center. The NHIS is a continuing survey of households which consist of noninstitutionalized, civilian people. A probability sample of households are interviewed each week by employees of the U.S. Bureau of the Census. Information about the health and other demographic characteristics of each living member of the sample household are obtained. A complete discussion of the NHIS data collection methods are located elsewhere (USDHHS, 1991, 1992, 1994).

The data used for this project were obtained from the Health Promotion and Disease Prevention supplement of the 1990 and 1991 NHIS data sets and the Cancer Control supplement of the NHIS 1992 data set. A subset of black and white current smokers who saw their doctor at least once in the past 12 months was created for each year. Table 1 lists the total number of persons in the data sets for 1990, 1991 and 1992 before and after subsetting. It should be noted that the calculation of the smoking status variable completed by the NCHS differed from 1990 to 1992. In 1990, only those that responded that they "smoked now" were considered current smokers. In 1991 and 1992 current smoking status was expanded to include "some day" smokers (Appendix 1).

TABLE 1
SOURCES OF DATA

YEAR	NHIS SUPPLEMENT	N BEFORE SUBSET	N AFTER SUBSET
1990	Health Promotion and Disease Prevention	41,104	7,495
1991	Health Promotion and Disease Prevention	43,632	8,174
1992	Cancer Control	12,035	2,192

The dependent variable used in this analysis was "reported smoking cessation advice by a physician". Variation existed in the wording of this question in each of the three years of analysis. In 1990, respondents were asked if they had "ever been advised to quit or cut down on smoking by a physician". In 1991, they were asked if they had "ever been advised to quit smoking by a physician or health professional". In 1992, respondents were asked if they had been "advised to quit smoking by a physician in the past 12 months". Results from 1990 and 1991 will be analyzed together because the question includes "ever advised to quit smoking" in both years. Because the question in 1992 only includes advice received in the past year, the results for 1992 will be analyzed separately. Other differences from 1990 to 1992 which limit the analysis across the three years include differences in the way the data were collected (CDC, 1994). In 1992 data were collected in a 6 month period from January to July. Data were collected for the full years in 1990 and 1991.

The independent variables for 1990, 1991 and 1992 were selected to observe how the demographic, socioeconomic and health characteristics of current smokers who have seen their doctor at least once in the past 12 months affects the reported receipt of advice to quit smoking from a physician. The demographic and socioeconomic variables used were the same for each year. The demographic variables included race, gender, age, region of the country and marital status.

The socioeconomic variables included education, family income, poverty status, employment status. Because socioeconomic status may not be measured by any one of these variables alone (Kreiger, 1994), a socioeconomic variable was created by adding the four categories of each of the education and family income variables together. Seven new categories were obtained and they were grouped into low, mid and high SES categories. The first 2 groups were considered the low SES category, the 3rd and 4th group made up the mid SES category and the 6th, 7th and 8th groups comprised the high SES category. The SES variable may be limited because SES may not be explained by income and education alone. For instance, the SES variable does not include occupational status nor does it take into account all of the economic resources available to a respondent (Williams, 1991).

The health variables that were consistent for all three years were health status, "have a regular source of care", and "type of place of regular source of care". Some differences existed in the health variables between 1990, 1991 and 1992. The actual survey questions for the health variables can be found in Appendix 1. For 1990 and 1991,

the variable "seen medical doctor in the past 12 months" was calculated using the variable "number of doctor visits in the past 12 months". A "yes" response included those that had seen their medical doctor at least once in the past 12 months and a "no" response included those who responded that they had not seen their medical doctor at least once in the past 12 months. In 1992, it was not necessary to convert the variable because the variable was a questionnaire item.

Certain variables were not available for all three years but were analyzed to see their effect for the particular year in which they were included in the survey. If respondents did not have a regular source of care they were asked the reason why. This question was only asked in 1990 and 1992. To assess ability to pay as a factor for not having a regular source of care, the response to this question was used for 1990 and 1992. In 1991, the insurance status question was used to ascertain the respondents' ability to pay for care.

Weights were used to make accurate estimates of the correct representation of persons from the NHIS compared to the general population. The weight was calculated in the same manner for each year. This weight accounts for non-response and selection of only one adult per family (USDHHS, 1993). Data were obtained from the 1992 U. S. Census to compare the weighted percentages with current U.S. population statistics (Bennett, 1993).

Data management and analysis were completed using the Statistical Analysis System (SAS). The original variables were recoded to condense categories. Responses that

were coded as not applicable, not mentioned or not ascertained were coded as missing. Frequencies of the variables were obtained to check for proper subsetting and recoding. Chi square probabilities were obtained for the descriptive and bivariate analysis. Chi square probabilities were used to evaluate whether or not the observed frequencies differed significantly from those which would be expected under a certain set of theoretical assumptions (Blalock, 1960). The descriptive analysis consisted of cross-tabs of each independent variable by the dependent variable to obtain a profile of current smokers who saw their physicians at least once in the past 12 months. The bivariate analysis consisted of cross-tabs of race by the dependent variable after controlling for individual variables to see how each category affected the relationship between race and the dependent variable. This test is a very general test (Blalock, 1960) and is limited because it does not allow one to understand the many factors affecting the dependent variable by controlling for many independent variables simultaneously.

Multivariate logistic regression analysis was performed to examine the joint effects of the different demographic, socioeconomic and health variables on the dependent variable, "doctor advised to quit smoking". The variables used in the logistic regression analysis were variables in which data was available for all three years. Both the unadjusted and adjusted odds ratios were obtained. Unadjusted odds ratios were obtained to examine the separate effects of each independent variable on the dependent variable. Adjusted odds ratios were obtained to observe the combined effects of all of the independent variables on

the dependent variable. The 95% confidence intervals were also obtained for all computations .

RESULTS

DESCRIPTIVE ANALYSIS

Tables 2 to 4 represent the percentages of black and white current smokers who have seen their physician at least once in the past 12 months after controlling for each of the demographic, socioeconomic and health variables for the years 1990-1992. The percentages are weighted to reflect their appropriate population distribution. The variables age, marital status, education, family income, poverty status, and employment status by race from the 1992 U.S. Census are listed in table 5. The percentages from tables 2 to 4 approximate the demographic profile of the U.S. population.

The cumulative mean age for 1990, 1991 and 1992 was 41.4 years for whites and 41.9 years for blacks. The percentage of white current smokers who were between 18-24 years old exceeded the percentage of black current smokers in this age category (table 2). However, the percentage of blacks between 25 and 54 years old exceeded the percentage of whites in this age range. Compared to whites, blacks were more likely to live in the South and be unmarried.

In terms of socioeconomic status blacks were more likely to have less than a high school degree, have a family income of less than $20,000, live below the poverty level and be unemployed compared to whites from 1990 to 1992 (table 3). In addition, blacks were more likely than whites to be in the low SES category for all three years.

TABLE 2
1990-1992 PROFILE OF CURRENT SMOKERS
DEMOGRAPHIC VARIABLES

PERCENT OF BLACK AND WHITE CURRENT SMOKERS
WHO HAVE SEEN THEIR DOCTOR AT LEAST ONCE IN THE PAST 12 MONTHS

(W=WHITE, B=BLACK, W/B=WHITE TO BLACK RATIO*)

	1990			1991			1992		
	w	b	w/b	w	b	w/b	w	b	w/b
GENDER									
male	46.6	47.3	.99	45.1	49.0	.92	46.3	53.7	.86
female	53.4	52.7	1.0	54.9	51.1	1.1	49.2	50.8	.97
AGE									
18-24	13.5	10.4	1.3	12.9	8.2	1.6	14.0	6.1	2.3
25-34	27.0	27.6	.98	26.3	30.9	.85	25	26.4	.95
35-44	22.2	25.9	.86	23.7	26.0	.91	21.8	25.3	.86
45-54	16.6	17.3	.96	16.5	17.5	.94	18.6	19.7	.94
55-64	11.3	11.1	1.0	10.9	10.3	1.1	10.3	12.4	.83
65+	9.5	7.7	1.2	9.8	7.0	1.4	10.4	10.2	1.0
MEAN AGE	41.1	41.2		41.4	41.0		41.6	43.5	
REGION									
Northeast	20.5	14.6	1.4	20.8	17.1	1.2	18.8	16.1	1.2
Midwest	28.4	24.3	1.2	26.8	26.0	1.0	28.2	19.8	1.4
South	31.9	54.2	.59	32.3	46.8	.69	32.7	50.4	.65
West	19.2	6.6	2.9	20.1	10.0	2.1	20.3	13.7	1.5
MARITAL STATUS									
married	65.3	41.7	1.6	65.5	43.0	1.5	64.6	42.1	1.5
unmarried	34.8	58.3	.60	34.5	57.0	.61	35.4	58.0	.61

* rounded to the nearest tenth, $p < .0001$

TABLE 3
1990-1992 PROFILE OF CURRENT SMOKERS
SOCIOECONOMIC VARIABLES

PERCENT OF BLACK AND WHITE CURRENT SMOKERS
WHO HAVE SEEN THEIR DOCTOR AT LEAST ONCE IN THE PAST 12 MONTHS

(W=WHITE, B=BLACK, W/B=WHITE TO BLACK RATIO*)

	1990			1991			1992		
	w	b	w/b	w	b	w/b	w	b	w/b
EDUCATION									
< hs grad	23.7	37.2	.64	23.2	32.2	.72	24.8	27.8	.89
hs grad	45.2	38.5	1.2	44.2	42.6	1.0	42.7	42.7	1.0
some coll	19.1	16.0	1.2	20.3	18.3	1.1	20.9	18.3	1.1
coll grad+	12.0	8.3	1.4	12.1	6.9	1.8	11.6	11.2	1.0
FAMILY INCOME									
$0-14,999	23.9	49.0	.49	21.7	43.1	.50	22.8	42.6	.53
$15-19,999	10.9	13.6	.80	10.3	11.3	.91	10.1	10.6	.95
$20-49,999	46.4	30.4	1.5	47.6	35.5	1.3	46.2	37.0	1.2
$50+	18.8	7.0	2.7	20.4	10.1	2.0	20.9	9.8	2.1
SOCIOECONOMIC STATUS									
low SES	22.7	45.9	.49	20.3	40.6	.50	21.4	37.6	.57
mid SES	44.0	35.7	1.2	44.5	36.0	1.2	42.7	37.8	1.1
high SES	33.3	18.4	1.8	35.2	23.4	1.5	36.0	24.6	1.5
POVERTY STATUS									
> = pov threshold	89.0	69.6	1.3	88.7	68.5	1.3	86.7	71.7	1.2
< pov threshold	11.0	30.4	.36	11.3	31.6	.36	13.3	28.3	.45
EMPLOYMENT STATUS									
employed	94.9	85.1	1.1	93.1	88.4	1.1	93.1	90.8	1.0
unemployed	5.0	14.9	.33	6.9	11.6	.59	6.7	9.2	.73

* rounded to the nearest tenth, p <.0001

TABLE 4
1990-1992 PROFILE OF CURRENT SMOKERS
HEALTH VARIABLES

PERCENT OF BLACK AND WHITE CURRENT SMOKERS
WHO HAVE SEEN THEIR DOCTOR AT LEAST ONCE IN THE PAST 12 MONTHS

HEALTH VARIABLES
(W=WHITE, B=BLACK, W/B=WHITE TO BLACK RATIO*)

	1990			1991			1992		
	w	b	w/b	w	b	w/b	w	b	w/b
HEALTH STATUS									
Excel/ Very Good	57.2	44.4	1.3	55.8	41.1	1.4	55.6	42.3	1.3
Good	27.7	31.8	.87	28.1	34.4	.82	28.3	30.8	.92
Fair / Poor	15.1	23.8	.63	16.1	24.5	.66	16.2	26.9	.60
HAVE REGULAR SOURCE OF HEALTH CARE									
Yes	81.1	81.2	1.0	83.0	83.6	1.0	83.0	84.3	.98
No	18.9	18.8	1.0	17.0	16.4	1.0	17.0	15.7	1.1
TYPE OF PLACE FOR REGULAR HEALTH CARE									
Doctor's office	90.6	74.0	1.2	90.2	74.6	1.2	85.0	65.6	1.3
Hospital Outpatient Clinic	5.0	16.3	.31	4.6	16.3	.28	6.6	22.2	.30
Hospital Emergency Room	.79	1.3	.60	1.3	2.9	.45	2.6	4.7	.55
Health Center	3.5	7.8	.43	3.9	6.2	.62	5.7	7.6	.75
REASON DO NOT HAVE REGULAR SOURCE OF HEALTH CARE									
No insurance / can't afford		13.4	15.6	.86			7.2	8.2	.88
Have 2 or > doctors		9.2	9.4	.98			17.1	15.6	1.1
Don't need or have doctor		55.9	55.0	1.0			54.8	49.3	1.1
Prev. doc not available		5.4	7.3	.74			13.5	7.2	1.9
Too far away							.18	1.2	.15
Can't find right doctor		4.7	5.6	.84			7.3	18.6	.39
Recently moved to area		11.4	7.2	1.6					
HAVE HEALTH INSURANCE (NOT INCL MEDICAID OR MEDICARE)									
Yes					81.4	77.6	1.0		
No					18.6	22.4	.83		

* rounded to the nearest tenth, p<.0001

TABLE 5
1992 US CENSUS INFORMATION
BY RACE
(n=251,447)

	White	Black	White-Black Ratio
AGE			
20-24	7.0	7.9	.89
25-34	16.8	17.3	.97
35-44	15.9	14.2	1.1
45-54	11.1	8.9	1.2
55-64	8.7	6.9	1.3
65+	13.0	8.0	1.6
REGION			
Northeast	20.8	17.5	1.2
South	32.0	54.4	.59
West	22.1	8.0	2.8
Midwest	25.1	20.1	1.2
MARITAL STATUS			
Married	60.5	39.5	1.5
Unmarried	40	60.0	.67
EDUCATION			
< 9th grade	2.6	4.1	.63
hs grad or more	81.8	87.1	.94
some coll	26.1	25.6	1.0
coll grad +	12.0	24.2	.50
FAMILY INCOME (1991)			
$0-9,999	26.4	7.4	3.6
$10-24,999	29.5	22.4	1.3
$25-34,999	14.4	15.9	.90
$35-49,999	14.8	20.3	.73
$50,000+	14.9	34.1	.44
POVERTY STATUS			
< poverty threshold	11.0	33.0	.33
> poverty threshold	89.0	67.0	1.3
EMPLOYMENT STATUS			
employed	54.5	69.5	.78
unemployed	15.2	6.9	2.2

For each year, blacks in this sample were more likely to report their health as good, fair or poor compared to whites who were more likely to indicate that their health was excellent or very good (table 4). Black and white current smokers were equally likely to have a regular source of care in 1990 and 1991. In 1992, however, blacks were slightly more likely to have a regular source of care compared to whites. Whites were more likely to receive their health care in a doctor's office compared to blacks who were more likely to receive their care in a hospital outpatient clinic, hospital emergency room, or health center.

In terms of financial barriers to health care, blacks were 14% more likely in 1990 and 12% more likely in 1992 than whites to report that they could not afford health care as a reason they did not have a regular source of care (table 4). In 1991, blacks were 17% more likely than whites to lack health insurance.

The results from the bivariate analysis for the differences in reported smoking cessation advice by race after controlling for the demographic, socioeconomic, and health variables for 1990, 1991 and 1992 are presented in tables 6 to 11. Tables 12 through 17 represent the logistic regression analysis. The unadjusted effects of each variable on the probability of persons reporting that they received advice to quit smoking are illustrated, as well as, the adjusted analysis demonstrating the combined effects of all the variables on the dependent variable. The results for 1990 and 1991 are listed separately from 1992. The tables are grouped according to the type of variable: demographic, socioeconomic or health.

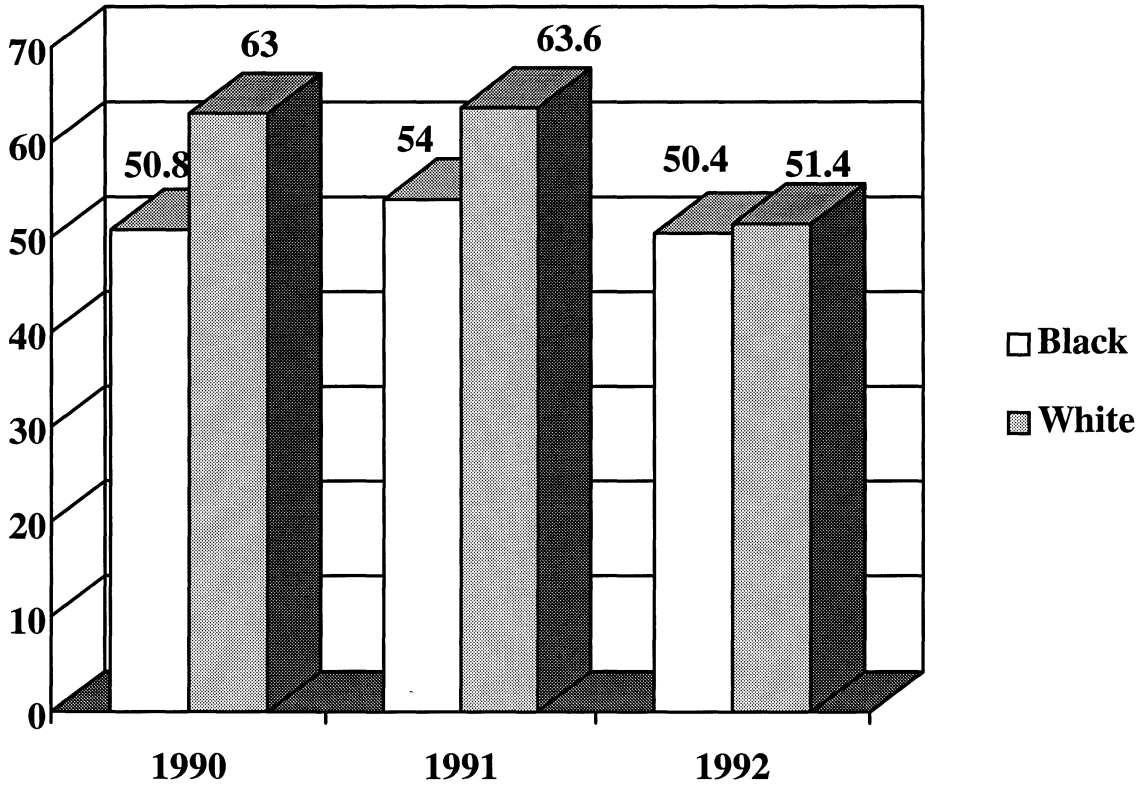
BIVARIATE ANALYSIS

The bivariate analysis revealed that blacks were less likely to report receiving smoking cessation advice compared to whites for 1990, 1991 and 1992. Figure 2 shows that these differences decreased from 1990 to 1992. The following discussion examines how the differences in receiving smoking cessation advice between blacks and whites vary after controlling for the demographic, socioeconomic and health variables. The chi square values for all of the reported crosstabs were significant at the $p < .0001$ level.

1990 and 1991

In 1990 and 1991, blacks were approximately 20% less likely compared to whites to report that they had ever received smoking cessation advice (table 6.) This difference persisted after controlling for all of the demographic variables except for smokers living in the Northeast in 1991. White males were 40% more likely in 1990 and 20% more likely in 1991 to report that they received advice to quit smoking compared to blacks males. White females were 10% more likely than black females to receive smoking cessation advice in 1990 and 1991. In both years, as age increased the percent of black and white current smokers who reported ever receiving smoking cessation advice from their physician increased. In 1990, whites in the 18 to 24 year old category were 3.5 times more likely than blacks in this category to report receiving advice to quit smoking. In 1991 this figure decreased to 1.3. After controlling for marital status, whites were 30% more likely in 1990 and 10% more likely in 1991 to report that they had received advice to quit smoking compared to blacks.

Figure 2
Percent of Black and White Current Smokers Who Reported Receiving Smoking Cessation Advice From Physicians - 1990-1992



1990, 1991, 1992 NHIS data $p < .0001$

TABLE 6
1990 - 1991 BIVARIATE ANALYSIS
DEMOGRAPHIC VARIABLES

CURRENT SMOKERS WHO HAVE SEEN THEIR DOCTOR IN THE PAST 12 MO NTHS WHO REPORTED EVER RECEIVING ADVICE TO QUIT SMOKING BY RACE

(W=WHITE, B=BLACK, W/B=WHITE TO BLACK RATIO *)

	1990			1991		
	w	**b**	**w/b**	**w**	**b**	**w/b**
RACE	63.0	50.8	1.2	63.6	54.0	1.2
GENDER						
male	60.4	43.9	1.4	60.9	49.3	1.2
female	65.9	58.7	1.1	65.8	58.4	1.1
AGE						
18-24	44.4	12.6	3.5	49.1	37.0	1.3
25-34	55.6	50.0	1.1	60.0	51.8	1.2
35-44	67.7	55.7	1.2	65.3	51.9	1.3
45-54	69.1	55.5	1.2	68.5	60.6	1.1
55-64	69.1	56.6	1.2	74.7	66.1	1.1
65+	71.2	56.9	1.3	67.2	56.9	1.2
REGION						
Northeast	64.9	50.3	1.3	63.2	65.0	.97
Midwest	62.7	57.3	1.1	66.8	53.5	1.2
South	61.6	48.2	1.3	60.6	49.5	1.2
West	63.8	51.5	1.3	64.4	57.0	1.1
MARITAL STATUS						
married	65.3	50.9	1.3	65.6	57.8	1.1
unmarried	58.9	50.7	1.2	59.8	51.0	1.2

* rounded to the nearest tenth, $p < .0001$

Controlling for each of the socioeconomic variables revealed that blacks were less likely than whites to report ever receiving advice to quit smoking except for blacks in the $15-19,999 category who were 3% more likely to receive advice compared to whites (table 7). The largest ratio (1.4) of white to black current smokers who reported receiving smoking cessation advice occurred among smokers who had a college degree or more and whose families earned more than $50,000 in 1990.

In both years, blacks in all SES levels were less likely than whites to report receiving advice (table 7). However, the white to black ratio decreased between 10 and 20% as SES increased.

In 1990 and 1991, whites were more likely to report receiving smoking cessation advice in both categories of poverty status and employment status (table 7). Whites who were living below the poverty level were 30% more likely to receive advice in 1990 and 1991 compared to blacks living below the poverty level. In 1990 unemployed whites were 50% more likely than unemployed blacks to report receiving advice to quit smoking. This difference decreased to 10% in 1991.

In both 1990 and 1991, whites were more likely to report receiving advice than blacks at all health levels (table 8). In 1990, whites were 30% more likely than blacks to report receiving advice in all health status categories. In 1991, the white to black ratio decreased from 1.4 among smokers with excellent health to 1.1 among smokers with fair or poor health. Whites with a regular source of care were 20% more likely in 1990 and 10% more likely in 1991 than blacks to receive smoking cessation advice. In 1990 whites were up to 40% more likely than blacks to report receiving advice to quit smoking in all places of

TABLE 7
1990 - 1991 BIVARIATE ANALYSIS
SOCIOECONOMIC VARIABLES

CURRENT SMOKERS WHO HAVE SEEN THEIR DOCTOR IN THE PAST 12 MO NTHS WHO REPORTED EVER RECEIVING ADVICE TO QUIT SMOKING BY RACE

(W=WHITE, B=BLACK, W/B=WHITE TO BLACK RATIO *)

	1990			1991		
	w	b	w/b	w	b	w/b
EDUCATION						
< hs grad	61.2	51.0	1.2	64.3	53.7	1.2
hs grad	63.2	51.0	1.2	63.0	52.7	1.2
some coll	62.9	49.5	1.3	62.8	55.4	1.1
coll grad+	66.0	48.7	1.4	65.7	60.5	1.1
INCOME						
$0-14,999	64.9	48.8	1.3	63.9	51.1	1.3
$15-19,999	60.2	61.9	.97	67.9	51.6	1.3
$20-49,999	61.9	50.5	1.2	64.5	59.4	1.1
$50,000+	70.6	49.6	1.4	65.6	58.8	1.1
SOCIOECONOMIC STATUS						
Low SES	64.9	51.3	1.3	63.9	51.2	1.2
Mid SES	61.2	48.4	1.3	64.8	55.4	1.2
High SES	67.3	55.7	1.2	65.9	60.5	1.1
POVERTY STATUS						
>= poverty threshold	63.7	51.8	1.2	63.8	55.6	1.1
< poverty threshold	60.5	48.1	1.3	65.7	51.0	1.3
EMPLOYMENT STATUS						
employed	60.9	48.3	1.3	61.8	46.7	1.3
unemployed	61.3	39.9	1.5	61.7	54.4	1.1

* rounded to the nearest tenth, p< .0001

TABLE 8
1990 - 1991 BIVARIATE ANALYSIS
HEALTH VARIABLES

CURRENT SMOKERS WHO HAVE SEEN THEIR DOCTOR IN THE PAST 12 MONTHS WHO REPORTED EVER RECEIVING ADVICE TO QUIT SMOKING BY RACE

(W=WHITE, B=BLACK, W/B=WHITE TO BLACK RATIO*)

	1990			1991		
	w	**b**	**w/b**	**w**	**b**	**w/b**
HEALTH STATUS						
Excel/ Very Good	58.3	46.4	1.3	59.6	43.9	1.4
Good	64.9	49.2	1.3	64.6	53.9	1.2
Fair / Poor	76.6	60.2	1.3	76.0	70.3	1.1
HAVE REGULAR SOURCE OF HEALTH CARE						
Yes	66.4	56.5	1.2	66.0	57.7	1.1
TYPE OF PLACE OF REGULAR HEALTH CARE						
Doctor's office	66.1	56.1	1.2	66.2	57.8	1.1
Hospital Outpt. Clin.	73.6	63.9	1.2	69.7	57.2	1.2
Hospital ER	71.3	49.5	1.4	54.9	58.8	.93
Health Center	61.9	56.7	1.1	63.4	57.9	1.1
REASON DO NOT HAVE REGULAR SOURCE OF HEALTH CARE						
No insurance / can't afford	56.5	17.5	3.2			
Have 2 or > doctors	58.9	51.6	1.1			
Don't need or have doctor	41.4	23.9	1.7			
Prev. doc not available	56.7	18.7	3.0			
Can't find right doctor	9.2	80.7	.86			
Recently moved to area	49.0	10.6	4.6			
HAVE HEALTH INSURANCE (NOT INCLUDE MEDICAID OR MEDICARE)						
Yes				64.2	60.9	1.1
No						

* rounded to the nearest tenth, p<.0001

health care treatment. In 1991, whites were more likely than blacks to receive smoking cessation in all places of care except for the emergency room where blacks were 7% more likely than whites to report receiving smoking cessation advice.

In 1990, whites who reported an inability to pay as a reason they did not have a regular source of health care were 3.2 times more likely than blacks of the same status to report ever receiving smoking cessation advice from a doctor (table 8). In 1991, whites without health insurance, not including Medicaid or Medicare, were 10% more likely to receive advice to quit smoking compared to blacks.

1992

In 1992, whites were 2% more likely than blacks to report receiving smoking cessation advice in the past twelve months (table 9). No differences were observed in the rates of receiving smoking cessation advice after controlling for gender. Whites were more likely than blacks to report receiving smoking cessation advice compared to blacks in all age groups except among those who were between 25 and 34 years old and among those who were age 65 and older. Blacks and whites who were 25 to 34 years old were equally likely to report receiving smoking cessation advice. Among current smokers who were age 65 and older, blacks were 26% more likely than whites to report receiving smoking cessation advice from a physician in the past 12 months.

After controlling for geographic region of the country, the greatest discrepancy between blacks and whites was observed in the Northeast where whites were 60% more

TABLE 9
1992 BIVARIATE ANALYSIS
DEOMOGRAPHIC VARIABLES

CURRENT SMOKERS WHO HAVE SEEN THEIR DOCTOR IN THE PAST 12 MONTHS WHO REPORTED RECEIVING ADVICE TO QUIT SMOKING IN THE PAST 12 MONTHS BY RACE

(W=WHITE, B=BLACK, W/B=WHITE TO BLACK RATIO*)

	W	B	W/B
RACE			
Yes	51.4	50.4	1.02
GENDER			
male	49.3	48.8	1.0
female	53.3	52.0	1.0
AGE			
18-24	45.2	28.0	1.6
25-34	43.4	41.6	1.0
35-44	53.4	48.7	1.1
45-54	56.5	53.4	1.1
55-64	60.0	56.6	1.1
65+	57.1	77.1	.74
REGION			
Northeast	54.6	33.8	1.6
Midwest	50.5	56.5	.89
South	50.7	49.5	1.0
West	50.9	64.5	.79
MARITAL STATUS			
married	53.5	53.2	1.0
unmarried	47.7	48.4	.99

*rounded to the nearest tenth, p<.0001

likely than blacks to report receiving smoking cessation advice (table 9). Blacks in the Midwest were 11% more likely and blacks in the West were 21% more likely than whites to report receiving advice to stop smoking by a physician in the past 12 months. There were no differences between black and white current smokers who reported receiving advice from a physician in the past 12 months after adjusting for marital status.

Among those with less than a high school degree, whites were 20% more likely than blacks to report receiving advice to quit smoking (table 10). Blacks were 20% more likely than whites to report receiving advice among those with some college education. Black current smokers who earned a high school or college degree or more had the same likelihood as white current smokers with the same educational background to receive advice to quit smoking.

Blacks were either equally likely or up to 25% more likely than whites to report receiving smoking cessation advice in the past 12 months from a physician among those whose families earned less than $50,000 (table 10). Whites were 2.2 times more likely than blacks to have reported receiving smoking cessation advice among smokers whose total family income exceeded $50,000.

Whites in the low and high SES categories were 10% more likely to report receiving smoking cessation advice in the past 12 months from a physician compared to blacks (table 10). Among persons in the middle socioeconomic category, blacks were 3% more likely than whites to report that they had received advice to quit smoking.

Black and white smokers living at or above the poverty threshold were equally likely to report receiving advice to quit smoking (table 10). Among smokers living below

TABLE 10
1992 BIVARIATE ANALYSIS
SOCIOECONOMIC VARIABLES

CURRENT SMOKERS WHO HAVE SEEN THEIR DOCTOR IN THE PAST 12 MONTHS WHO REPORTED RECEIVING ADVICE TO QUIT SMOKING IN THE 12 MONTHS BY RACE

(W=WHITE, B=BLACK, W/B=WHITE TO BLACK RATIO*)

	W	B	W/B
EDUCATION			
< hs grad	51.5	42.8	1.2
hs grad	50.9	48.7	1.0
some coll	51.0	63.1	.80
coll grad +	56.2	55.1	1.0
INCOME			
$0-14,999	49.5	48.6	1.0
$15-19,999	44.8	59.8	.75
$20-49,999	50.9	52.5	.97
$50,000+	60.5	27.3	2.2
SOCIOECONOMIC STATUS			
Low SES	50.3	46.9	1.1
Mid SES	50.4	51.8	.97
High SES	55.3	48.4	1.1
POVERTY STATUS			
>= poverty threshold	52.0	51.7	1.0
< poverty threshold	50.0	45.1	1.1
EMPLOYMENT STATUS			
employed	50.7	46.5	1.1
unemployed	36.4	54.3	.67

*rounded to the nearest tenth, p<.0001

the poverty threshold, whites were 10% more likely than blacks to report receiving advice to quit smoking. Employed whites were 10% more likely than employed blacks to report that they had received smoking cessation advice in the past year. Unemployed blacks were 33% more likely to report receiving advice to quit smoking in 1992 compared to unemployed whites.

Blacks with excellent or very good health were 3% more likely than whites with the same health status to report receiving advice to quit smoking (table 11). White current smokers who indicated they had good, fair or poor health were 20% and 10% more likely, respectively, than blacks with similar health to report receiving advice. Blacks who had a regular source of health care were 3% more likely than whites with a regular source of care to report receiving advice to quit smoking in the past 12 months. Among individuals who received their regular care in a doctor's office or emergency room, blacks were 5% and 3% more likely, respectively, than whites to report that they had received advice to quit smoking. Whites who received their care in a hospital outpatient room or health center were 10% and 60% more likely, respectively, than blacks who received their care in a similar setting to receive smoking cessation advice. Whites were 2.2 times more likely than blacks to report receiving advice to quit smoking among those who reported either a lack of insurance or an inability to pay for health care as the reason they did not have a regular source of care.

TABLE 11
1992 BIVARIATE ANALYSIS
HEALTH VARIABLES

CURRENT SMOKERS WHO HAVE SEEN THEIR DOCTOR IN THE PAST 12 MONTHS WHO REPORTED RECEIVING ADVICE TO QUIT SMOKING IN THE PAST 12 MONTHS BY RACE

(W=WHITE, B=BLACK, W/B=WHITE TO BLACK RATIO*)

	W	B	W/B
HEALTH STATUS			
Excel/ Very Good	46.5	47.7	.97
Good	54.5	45.6	1.2
Fair/ Poor	63.5	60.3	1.1
HAVE REGULAR SOURCE OF HEALTH CARE			
Yes	53.6	55.0	.97
TYPE OF PLACE OF REGULAR SOURCE OF CARE			
Doctor's Office	53.0	56.0	.95
Hospital Outpatient Clinic	59.4	53.0	1.1
Hospital Emergency Room	34.6	35.6	.97
Health Center	51.8	32.1	1.6
REASON DO NOT HAVE REGULAR SOURCE OF HEALTH CARE			
No insurance / can't afford	48.2	22.1	2.2
Have 2 or > doctors	40.9	18.7	2.2
Don't need or have doctor	34.0	4.2	8.1
Prev. doctor not available	39.4	10.4	3.8
Can't find right doctor	70.3	80.0	.88

*rounded to the nearest tenth, p<.0001

LOGISTIC REGRESSION ANALYSIS

Tables 12 -17 represent the logistic regression analysis. The unadjusted logistic regression analysis shows the separate effects of each demographic, socioeconomic and health variable on the dependent variable "reported receipt of smoking cessation advice from a physician". The adjusted analysis illustrates the effects of controlling for all the variables simultaneously on the probability of receiving smoking cessation advice from a physician. All odds ratio values were significant at the $p<.0001$ level. After adjusting for all other factors in the model, race continued to play a large role in determining the probability of receiving smoking cessation advice in each year studied.

1990 and 1991

Unadjusted Analysis - Demographic Variables

In 1990, the unadjusted analysis revealed that black smokers were 39% less likely to report ever receiving advice from a physician to stop smoking (table 12). In 1991, black smokers were 33% less likely to report ever receiving advice from a physician or other health professional to stop smoking. Females were 30% more likely than males to report ever receiving advice to stop smoking. Generally, as age increased the likelihood of smokers who reported receiving advice increased. Current smokers living in the Northeast, Midwest and West were between 10-30% more likely to report receiving advice than those who lived in the South. Unmarried smokers were 24% less likely in 1990 and 25% less likely in 1991 to report receiving smoking cessation advice compared to married smokers.

TABLE 12
1990 - 1991 LOGISTIC REGRESSION ANALYSIS
DEOMOGRAPHIC VARIABLES

UNADJUSTED and ADJUSTED* ODDS RATIOS **
FOR CURRENT SMOKERS WHO HAVE SEEN THEIR
DOCTOR AT LEAST ONCE IN THE PAST 12 MONTHS
DEPENDENT VARIABLE = DOCTOR ADVISED TO QUIT SMOKING

	1990		1991	
	UNADJ.	**ADJ.**	**UNADJ.**	**ADJ.**
RACE				
White	REF	REF	REF	REF
Black	.61	.53	.67	.64
GENDER				
male	REF	REF	REF	REF
female	1.3	1.4	1.3	1.3
AGE				
18-24	REF	REF	REF	REF
25-34	1.7	1.6	1.5	1.4
35-44	2.7	2.1	1.9	1.7
45-54	2.9	2.1	2.2	2.0
55-64	2.9	1.9	3.0	2.9
65+	3.3	3.1	2.1	2.1
REGION				
Northeast	1.2	1.1	1.2	1.2
Midwest	1.1	.94	1.3	1.2
South	REF	REF	REF	REF
West	1.2	.94	1.2	1.0
MARITAL STATUS				
married	REF	REF	REF	REF
unmarried	.76	.94	.75	.82

*ADJUSTED FOR ALL INDEP. VARIABLES SIMULTANEOUSLY
** P< .0001

Adjusted Analysis - Demographic Variables

After adjusting for all other demographic, socioeconomic and health variables, blacks were 47% less likely than whites in 1990, and 36% less likely than whites in 1991 to report ever receiving smoking cessation advice (table 12). Women were 40% more likely in 1990 and 30% more likely in 1991 to report ever receiving advice to quit smoking compared to males. With regard to age, persons age 25 and older were more likely to report ever receiving advice from a physician compared to persons between the ages of 18 and 24. Compared to persons living in the South, residents of the Midwest and the West were 6% less likely to report receiving advice in 1990. In 1991, smokers living in the Northeast and the Midwest were 20% more likely to receive advice than smokers in the South. In terms of marital status, unmarried smokers were 6% less likely in 1990 and 18% less likely in 1991 to receive advice to quit smoking compared to married smokers.

Unadjusted Analysis - Socioeconomic Variables

Current smokers with some college education or less were between 10-20% less likely to report receiving advice to quit smoking compared to persons with a college education or more before adjusting for all other variables in the model (table 13). In 1990 those whose family income was less than $49,000 were up to 32% less likely to report receiving advice to quit smoking compared to individuals whose family income exceeded $50,000. These differences persisted in 1991 except among respondents whose family income was between $15,000 and $19,999. No differences were observed among persons who earned between $15,000 and $19,999 compared to persons whose family income exceeded $50,000.

TABLE 13
1990 - 1991 LOGISTIC REGRESSION ANALYSIS
SOCIECONOMIC VARIABLES

UNADJUSTED AND ADJUSTED* ODDS RATIOS**
FOR CURRENT SMOKERS WHO HAVE SEEN THEIR
DOCTOR AT LEAST ONCE IN THE PAST 12 MONTHS
DEPENDENT VARIABLE = DOCTOR ADVISED TO QUIT SMOKING

	1990		1991	
	UNADJ.	**ADJ.**	**UNADJ.**	**ADJ.**
EDUCATION				
< hs grad	.80	.94	.89	1.0
hs grad	.90	1.1	.86	1.1
some coll	.89	.96	.87	1.0
coll grad+	REF	REF	REF	REF
FAMILY INCOME				
$0-14,999	.70	.81	.84	1.5
$15-19,999	.67	.90	1.0	1.4
$20-49,999	.68	.75	.95	1.1
$50,000+	REF	REF	REF	REF
SOCIOECONOMIC STATUS				
Low SES	.97	.77	.99	.47
Mid SES	.89	.85	1.1	.83
High SES	REF	REF	REF	REF
POVERTY STATUS				
< pov threshold	REF	REF	REF	REF
> = pov threshold	1.3	1.1	1.1	1.4
EMPLOYMENT STATUS				
unemployed	REF	REF	REF	REF
employed	1.2	.89	1.1	.89

* ADJUSTED FOR ALL INDEP. VAR SIMULTANEOUSLY
** P< .0001

In terms of socioeconomic status, smokers in the low SES and mid SES categories were 3% and 11% less likely, respectively, to report ever receiving smoking cessation advice compared to those in the high SES category in 1990 (table 13). In 1991, individuals in the mid SES category were 10% more likely to report ever receiving advice to quit smoking compared with individuals who were in the high SES category.

In 1990 and 1991, persons who lived below the poverty level were less likely to report receiving smoking cessation advice compared to smokers living at or above the poverty threshold (table 13). In addition, respondents who were unemployed were less likely to report receiving smoking cessation advice compared to respondents who were employed.

Adjusted Analysis - Socioeconomic Variables

Compared to smokers with a college education or more, smokers with less than a high school degree were 6% less likely to receive advice and smokers with some college education were 4% less likely to report receiving advice in 1990 after adjusting for all other variables (table 13). In 1991, however, smokers in the same categories were equally likely to report receiving advice to quit smoking compared to smokers with a college education or more. In both years, high school graduates were 10% more likely than those who earned at least a college degree to report ever receiving advice to quit smoking. Respondents whose families earned less than $49,999 were between 10-25% less likely to report receiving smoking cessation in 1990 compared to respondent whose total family income exceeded $50,000. In 1991, however, smokers whose family income was less than $49,999 were between 10-50% more likely than smokers whose family income exceeded $50,000 to

receive advice. In 1991, the amount of smoking cessation advice received was inversely related to family income.

In 1990, smokers in the low SES category were 23% less likely and those in the mid SES category were 15% less likely than those in the high SES category to report receiving advice to quit smoking (table 13). In 1991, respondents who comprised the low SES category were 53% less likely and respondents in the mid SES category were 17% less likely than those in the high SES category to ever receive advice to quit smoking from a physician.

Persons living below the poverty level in 1990 were 10% less likely than those living at or above the poverty level to receive smoking cessation advice (table 13). In 1991 impoverished smokers were 40% less likely than smokers living at or above the poverty threshold to report receiving smoking cessation advice. Smokers who were unemployed were 11% more likely in 1990 and 1991 to report ever receiving advice to quit smoking from a physician compared to employed smokers.

Unadjusted Analysis - Health Variables

Smokers who indicated that their health status was excellent, very good or good were up to 53% less likely than smokers with fair or poor health to report receiving advice to quit smoking in 1990 and 1991 (table 14). Persons with a regular source of health care were 2.1 times as likely in 1990 and 1.9 times as likely in 1991 to report ever receiving advice to quit smoking compared to those without a regular source of health care. Smokers who received their regular source of care in a hospital outpatient clinic or hospital emergency room were 50% and 30% more likely, respectively, to report ever receiving

TABLE 14
1990 - 1991 LOGISTIC REGRESSION ANALYSIS
HEALTH VARIABLES

UNADJUSTED AND ADJUSTED* ODDS RATIOS**
FOR CURRENT SMOKERS WHO HAVE SEEN THEIR
DOCTOR AT LEAST ONCE IN THE PAST 12 MONTHS
DEPENDENT VARIABLE = DOCTOR ADVISED TO QUIT SMOKING

	1990		1991	
	UNADJ.	**ADJ.**	**UNADJ.**	**ADJ.**
HEALTH STATUS				
Excel/ Very Good	.49	.64	.47	.56
Good	.61	.69	.58	.68
Fair / Poor	REF	REF	REF	REF
HAVE REGULAR SOURCE OF HEALTH CARE				
Yes	2.1	1.8	1.9	1.7
No	REF	REF	REF	REF
TYPE OF PLACE OF REGULAR SOURCE OF CARE				
Doctor's office	REF	REF	REF	REF
Hospital Outpatient Clinic	1.5	1.9	1.1	1.2
Hospital Emergency Room	1.3	1.3	.77	.71
Health Center	.99	.77	1.0	.94

*ADJUSTED FOR ALL INDEP. VARIABLES SIMULTANEOUSLY
** P<.0001

advice compared to smokers who received their care at a doctor's office in 1990. In 1991, current smokers who received their care at a hospital outpatient clinic were 10% were more likely than those who received their care at a doctor's office to receive smoking cessation advice. Smokers who received their care at a hospital emergency room were 23% less likely to report receiving smoking cessation advice compared to smokers who received their care in a doctor's office in 1991.

Adjusted Analysis - Health Variables

The adjusted logistic regression analysis revealed that smokers who reported that their health was excellent, very good or good were between 31-44% less likely than smokers who reported that their health was fair or poor to receive smoking cessation advice from their physician (table 14). Persons who had a regular source of care were 80% more likely in 1990 and 70% more likely in 1991 to report that they had ever received advice from a physician to quit smoking.

Compared to smokers who received their regular care in a doctor's office, smokers who received their care in a hospital outpatient clinic and hospital emergency room were 90% and 30% more likely, respectively, to report ever receiving advice to quit smoking in 1990 (table 14). Smokers whose regular source of health care was a health center were 23% less likely in 1990 to receive advice to quit smoking from a physician compared to smokers who received their regular source of care at a doctor's office. In 1991, those who received

their care in a hospital outpatient clinic were 20% more likely than those who received their care in a doctor's office to report that they had ever received advice to quit smoking. Respondents who received their care in hospital emergency room or health center were 29% and 6% less likely, respectively, to receive advice to quit smoking compared to respondents who received their care in a doctor's office in 1991.

1992

Unadjusted Analysis - Demographic Variables

In 1992, blacks were 4% less likely than whites to report receiving advice to quit smoking in the past 12 months compared to blacks before controlling for other variables (table 15). Females were 20% more likely than males to report receiving smoking cessation advice in the past 12 months. Compared to those 18 to 24 years old, respondents older than 35 were more likely to report receiving smoking cessation advice. As age increased, the likelihood of receiving smoking cessation advice increased. Smokers living in the Northeast and Midwest were 10% more likely to report receiving advice compared to those in the South. Persons living in the Midwest were equally as likely as those living in the South to report receiving advice to quit smoking. Unmarried smokers were 20% less likely to report receiving advice to quit smoking compared to married smokers.

Adjusted Analysis - Demographic Variables

After controlling for all other variables in the model, blacks were 20% less likely than whites in 1992 to report receiving advice to quit smoking from a physician in the past 12 months (table 15). Females smokers remained 20% less likely than male smokers to report receiving smoking cessation advice. Smokers who were between the ages of 25 and

TABLE 15
1992 LOGISTIC REGRESSION ANALYSIS
DEMOGRAPHIC VARIABLES

UNADJUSTED AND ADJUSTED* ODDS RATIOS**
FOR CURRENT SMOKERS WHO HAVE SEEN THEIR
DOCTOR AT LEAST ONCE IN THE PAST 12 MONTHS
DEPENDENT VARIABLE = DOCTOR ADVISED TO QUIT SMOKING

	UNADJUSTED	ADJUSTED
RACE		
White	REF	REF
Black	.96	.80
GENDER		
male	REF	REF
female	1.2	1.2
AGE		
18-24	REF	REF
25-34	.96	.81
35-44	1.4	1.2
45-54	1.6	1.2
55-64	1.9	1.6
65+	1.9	1.5
REGION		
Northeast	1.1	1.1
Midwest	1.0	.91
South	REF	REF
West	1.1	.91
MARITAL STATUS		
married	REF	REF
unmarried	.80	1.1

* ADJUSTED FOR ALL INDEP. VARIABLES SIMULTANEOUSLY
** P<.0001

34 were 19% less likely than smokers who were 18 to 24 years old to report that they had received advice to quit smoking in the past 12 months. Respondents older than 35 were up to 60% more likely than those between the ages of 18 and 24 to receive advice to quit smoking from a physician. Compared to persons living in the South, persons living in the Midwest and West were 9% less likely to receive advice to quit smoking while persons in the Northeast were 10% more likely to receive smoking cessation advice from a physician. Unmarried respondents were 10% more likely to receive advice to quit smoking compared to married respondents.

Unadjusted Analysis - Socioeconomic Variables

As the level of education increased, the probability of receiving smoking cessation advice increased (table 16). Persons with some college education or less were up to 20% less likely to report receiving advice to quit smoking compared to those with a college education or more. Respondents whose total family income was less than $49,999 were less likely to report receiving advice compared to respondents whose family income exceeded $50,000. Smokers in the low and mid SES categories were 11% and 8% less likely, respectively, to report receiving smoking cessation advice compared to smokers in the high SES category. Respondents living at or above the poverty threshold were 10% more likely to report receiving smoking cessation advice compared to respondents living below the poverty level. Employed smokers were 60% more likely to receive advice to quit smoking compared to unemployed smokers.

TABLE 16
1992 LOGISTIC REGRESSION ANALYSIS
SOCIOECONOMIC VARIABLES

UNADJUSTED AND ADJUSTED* ODDS RATIOS**
FOR CURRENT SMOKERS WHO HAVE SEEN THEIR
DOCTOR AT LEAST ONCE IN THE PAST 12 MONTHS
DEPENDENT VARIABLE = DOCTOR ADVISED TO QUIT SMOKING

	UNADJUSTED	ADJUSTED
EDUCATION		
< hs grad	.79	.61
hs grad	.80	.80
some coll	.86	.86
coll grad	REF	REF
INCOME		
$0-14,999	.69	.60
$15-19,999	.62	.51
$20-49,999	.74	.69
$50,000+	REF	REF
SOCIOECONOMIC STATUS		
Low SES	.89	1.2
Mid SES	.92	1.1
High SES	REF	REF
POVERTY STATUS		
< poverty threshold	REF	REF
> = poverty threshold	1.1	1.4
EMPLOYMENT STATUS		
unemployed	REF	REF
employed	1.6	1.2

*ADJUSTED FOR ALL INDEP. VARIABLES SIMULTANEOUSLY
** P<.0001

Adjusted Analysis - Socioeconomic Variables

After controlling for all other variables in the model, the likelihood of receiving smoking cessation advice increased as education increased (table 16). However, persons with some college education or less were between 14%-39% less likely to report that they had received advice to quit smoking in the past 12 months compared to those with a college degree or more. Persons whose family income was less than $49,999 were between 31-49% less likely than those whose family income exceeded $50,000 to receive advice to quit smoking. Smokers with a low SES were 20% more likely to receive advice and smokers in the mid SES were 10% more likely to receive smoking cessation advice compared to smokers in the high SES category.

Those living below the poverty level were 40% less likely to report receiving advice to quit smoking compared to persons living at or above the poverty level (table 16). Employed smokers were 20% more likely than unemployed smokers to report receiving advice.

Unadjusted Analysis - Health Variables

Smokers with excellent, very good or good health were less likely than smokers with fair or poor health to report receiving advice (table 17). Persons with a regular source of care were 80% more likely to report ever receiving advice to quit smoking compared to persons who lacked a regular source of care. Respondents whose regular source of care was an emergency room or health center were 47% and 6% less likely, respectively, than those whose regular source of care was a doctor's office to report receiving advice to quit

TABLE 17
1992 LOGISTIC REGRESSION ANALYSIS
HEALTH VARIABLES

UNADJUSTED AND ADJUSTED* ODDS RATIOS**
FOR CURRENT SMOKERS WHO HAVE SEEN THEIR
DOCTOR AT LEAST ONCE IN THE PAST 12 MONTHS
DEPENDENT VARIABLE = DOCTOR ADVISED TO QUIT SMOKING

	UNADJUSTED	ADJUSTED
HEALTH STATUS		
Excel/ Very Good	.52	.36
Good	.82	.48
Fair/ Poor	REF	REF
HAVE REGULAR SOURCE OF HEALTH CARE		
No	REF	REF
Yes	1.8	1.6
TYPE OF PLACE OF REGULAR SOURCE OF CARE		
Doctor's office	REF	REF
Hospital Outpatient Clinic	1.3	1.5
Hospital Emergency Room	.53	.48
Health Center	.94	.96

*ADJUSTED INDEP. VARIABLES SIMULTANEOUSLY
** P<.0001

smoking. Smokers who received their regular care at a hospital outpatient clinic were 30% more likely to report ever receiving advice to quit smoking compared to those who received their care at a doctor's office.

Adjusted Analysis - Health Variables

The adjusted analysis revealed that smokers with excellent or very good health were 64% less likely and smokers with good health were 52% less likely to report receiving advice to quit smoking from a physician in the past 12 months compared to smokers with fair or poor health (table 17). Smokers who had a regular source of care were 60% more likely to receive advice to quit smoking than smokers who did not have a regular source of health care. Individuals whose regular source of care was a hospital emergency room were 52% less likely than individuals whose regular source of care was a doctor's office to receive advice to quit smoking from a physician. Respondents who went to a hospital outpatient clinic for care were 50% more likely to receive advice to quit smoking from a physician compared to respondents who went to a doctor's office for their regular source of care. Those who went to a health center for their regular source of care were 4% less likely to report receiving smoking cessation advice in the past 12 months from a physician compared to those who received their care at a doctor's office.

DISCUSSION

Three general conclusions can be made based on the data analysis. In 1990, 1991, and 1992 racial disparities existed among black and white current smokers who reported that they had received smoking cessation advice from a physician even though the question was worded differently in each year of analysis. Secondly, the disparities between blacks and whites who reported receiving smoking cessation advice decreased from 1990 to 1992. Lastly, the probability of receiving smoking cessation advice was due to a combination of race, SES factors, and health variables that can be analyzed in the context of institutional racism.

Social class or socioeconomic factors played a role in explaining the probability of receiving advice to quit smoking from a physician for all three years. Analysis of the unadjusted logistic regression results for the independent effects of SES on receiving smoking cessation advice revealed that, in general, smokers in the lower SES categories and the lower education, family income, poverty status, and employment status categories had a lower likelihood of receiving smoking cessation advice than smokers in the high SES, education, family income, poverty and employment status categories. This is consistent with class theory which suggests that lower SES persons are more disadvantaged than higher SES persons in receiving health care.

However, class theory alone can not explain the differences between blacks and whites who reported receiving advice to quit smoking from a physician because racial differences remained after controlling for socioeconomic factors. The bivariate analysis

in 1990 and 1991 revealed that after controlling for education, family income, poverty status, employment status and SES, blacks were less likely than whites to receive smoking cessation advice. In addition, health insurance has been used as a proxy for measuring SES (Zahnister, 1992). When health insurance (not including Medicaid or Medicare) was controlled for in 1991, blacks were less likely than whites to report receiving smoking cessation advice. In 1990 and 1992, among persons who reported an inability to pay or a lack of health insurance as a reason they did not have a regular source of care, whites were more likely to receive advice to quit smoking compared to blacks.

In addition, socioeconomic status can not be the sole determinant of receiving smoking cessation advice because blacks were more economically disadvantaged compared to whites. Consistent with U.S. population statistics, blacks in this analysis were concentrated in the lower SES levels of society. Black smokers who saw their physician at least once in the past 12 months were more likely to have less education, be in families that earn less money, live below the poverty level, and be unemployed compared to whites. Black smokers were more likely to have financial barriers in accessing health care. They were more likely than whites to state financial constraints as a reason they did not have a regular source of health care in 1990 and 1992 and that they lacked health insurance in 1991.

In 1963, the proportion of blacks who saw a physician in the past 12 months was 18% lower than whites (Blendon, 1989). Improvements have been made in the differences in access to health care among blacks and whites. Black and white current smokers in this sample were equally likely to report that they had a regular source of

health care. However, after controlling for having a regular source of health care, blacks were less likely to receive smoking cessation advice compared to whites.

This difference in receiving smoking cessation advice between blacks and whites may be partially due to organizational barriers to health care. Blacks may face more organizational barriers to health care compared to whites due to the type of place where they receive their care. Blacks were more likely to report that they received their care in a hospital outpatient clinic, a hospital emergency room or a health center compared to whites who were more likely to report that they received their regular care in a doctor's office. Even though they reported having a regular source of care, blacks seen at these sites may not have a regular physician. Those seen at a hospital outpatient clinic, hospital emergency room, or health center are probably more likely to see a different health professional at each visit. They might be more likely to focus on the patient's immediate problem rather than health promotion. These sites are often staffed by residents and have an abundance of patients who experience long waiting times. Conversely, those who receive their care in a physician's office are more likely to be seen by one physician where the opportunity exists for the doctor-patient relationship to develop. When the doctor patient relationship is established, the physician is more likely to be comfortable in advising their patients to change their behavior.

In addition, blacks were more likely to report that their health was fair or poor compared to whites who were more likely to report that their health was excellent or very good. The unadjusted logistic regression analysis showed that the amount of smoking cessation advice increased as health status decreased, yet after controlling for health

status, blacks were less likely to receive advice to quit smoking compared to whites. Thus, the quality of care they receive at hospital outpatient clinics, emergency rooms or health centers may be inferior to the care given at a doctor's office.

The bivariate and unadjusted logistic regression analyses in 1990, 1991 and to a lesser extent in 1992, showed that blacks were less likely to report receiving smoking cessation advice compared to whites. Thus, race alone had a significant effect on receiving smoking cessation advice. After adjusting for all of the demographic, socioeconomic and health variables, race had an even greater effect on receiving smoking cessation advice. This suggests that while the combined effects of race with other variables may predict the probability of receiving smoking cessation advice, race itself is an important predictor of receiving smoking cessation advice from a physician.

Furthermore, because differences existed across many of the demographic, socioeconomic, or health variables, certain groups of blacks may be affected more than others. In all three years of analysis it was evident that as age increased the percent of smokers who received advice to quit smoking also increased. However, blacks were still less likely than whites to receive smoking cessation advice. This suggests that younger populations of blacks may not be targeted as much as older populations. Since most smokers start smoking at a young age, doctors should not neglect this age group in terms of health promotion advice.

The disparity between whites and blacks in receiving smoking cessation advice decreased from 1990 to 1992. Overall, in 1990 and 1991, after controlling for all other factors in the bivariate analysis, whites reported receiving more advice to quit smoking

than blacks. In 1992, the percent of blacks who reported receiving more advice than whites were observed among those who were age 65 and older, who had at least some college education, who were unemployed, whose families earned between $15-49,999, who were in the mid socioeconomic class, who lived in the Midwest and West, who had excellent or very good health, and who had a regular source of care. These differences help to explain why the discrepancy decreased between blacks and whites who received smoking cessation advice from 1990 to 1992.

Other explanations for this decrease could include differences in the way the smoking cessation advice question was worded or sources of measurement error. Such error in using national data sets to assess the health status of black Americans has been reported (Andersen, 1989). Observational bias may arise between a white interviewer and black respondent. Other forms of bias include failure to include some types of individuals and the use of inaccurate or incomplete information. It has been shown that these biases tend to be greater for blacks than whites which may indicate that the health status of blacks may be worse than reported (Andersen, 1989). Therefore, it is also a possibility that the inequities in the self reports of blacks and whites who received smoking cessation advice from physicians could be underestimated.

Based on the analyses from 1990 to 1992, it is possible to expand upon the hypothesized relationship of race, SES and health status shown in figure 1. Figure 3 is a multidimensional model of factors that effect receiving smoking cessation advice from physicians. Family income, education, poverty status and employment status characterize the respondents' socioeconomic status. Marital status indirectly effects SES by

influencing the amount of family income earned. Race influences SES and health status because blacks are more likely to be in the lower socioeconomic classes of society and thus may face more financial barriers to health care. SES influences health status because having a regular source of care, the type of care and the ability to pay for health care are dependent on financial resources. Those in the lower SES categories are more likely to face financial barriers in accessing health care and organizational barriers at public or non-private places of care. Poor health in turn effects SES because the ability to work is contingent upon good health. Lower SES and health status further concentrate blacks into the lower socioeconomic classes. Thus, while SES and health variables exert an effect on being advised to quit smoking from a physician, race is a greater predictor of receiving advice. This may not be because of individual discrimination, but may be because of the racism that exists within the medical institution.

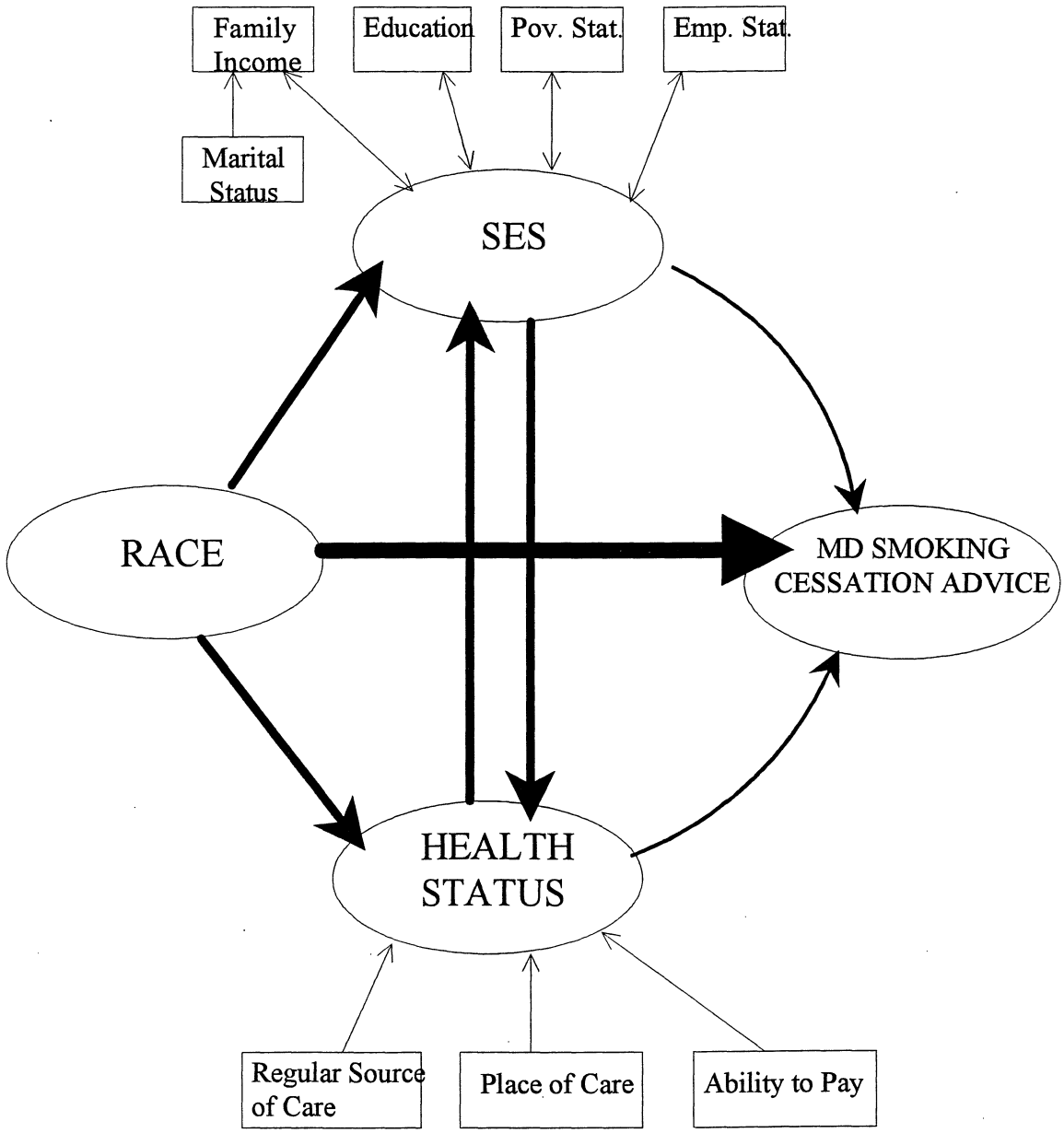
While figure 3 is adequate as a visual aid for describing the conclusions of this data, it has not been mathematically proven. An area for further research will be to mathematically prove this model using LISREL8, a program for structural equation modeling (Joreskog, 1993).

Complex mathematical equations, however, will not eliminate the sources of racial disparities in the health care system. Racial equality in health care will not be achieved until the differences in socioeconomic status have been reduced between blacks and whites. In addition to social reform, future efforts should focus on the sociocultural barriers of the doctor-patient relationship and ways to diminish them. "Whether the disparities in treatment decisions are caused by differences in income, education,

sociocultural factors, or failures by the medical profession, they are unjustifiable and must be eliminated (Council on Ethical and Judicial Affairs, AMA, 1990).

Figure 3

MULTIDIMENSIONAL MODEL OF FACTORS AFFECTING SMOKING CESSATION ADVICE FROM PHYSICIANS



Appendix 1
1990, 1991, 1992 National Health Interview Survey Questions

1990
Section Q. General Health Habits

Variable: Have regular source of care
Question 11. Is there a particular clinic, health center, doctor's office or other place that you usually go if you are sick or need advice about your health?

Variable: Type of place of regular source of care
If yes to question 11:
Question 12. What kind of place is it? A clinic, a health center, a hospital, a doctor's office or some other place?

If hospital - Is this an outpatient clinic or emergency room?
If clinic - Is this a hospital outpatient clinic, a company clinic, or some other place?

Variable: Reason don't have regular source of care
If no to question 11:
Question 14. Which is the MAIN reason you don't have a particular place you usually go? Choose one.
1. Have two or more usual doctors or places depending on what is wrong
2. Have not needed a doctor
3. Haven't been able to find the right doctor
4. Recently moved to area
5. Can not afford medical care
6. Other reason

To calculate current smokers:
Section X. Smoking

Question 1.
Have you smoked at least 100 cigarettes in your entire life?

If yes:
Question 2a. Do you smoke cigarettes now?
Those that answered yes were considered current smokers.

Appendix 1 (cont'd)

Variable: Doctor advised to quit smoking
Question 8.
Did a doctor ever advise you to quit or cut down on smoking?

1991

Section F. Tobacco Use

To calculate current smokers:
Question 1.
Have you smoked at least 100 cigarettes in your entire life?

Question 3.
Do you smoke cigarettes now?

If no to question 3:
Question 5.
Do you smoke cigarettes not at all or some days?

Those that answered yes to question 3 and some days to question 5 were classified as current smokers.

Section I. Occupational Safety and Health

Variable: Have insurance (not including Medicaid or Medicare)
Question 9a.
Not counting Medicare or Medicaid, are you now covered by a health insurance plan which pays any or part of hospital or doctor bills?

Variable: Doctor or health professional advised you to quit smoking
Question 21.
Has a doctor or health professional ever advised you to quit smoking?

Section L. Clinical and Preventive Services

Variable: Have regular source of care
Question 2a. Is there a particular clinic, health center, doctor's office or other place that you usually go if you are sick or need advice about your health?

Appendix 1 (cont'd)

Variable: Type of place of regular source of care
If yes to question 2a:
Question 2b.
What kind of place is it - a clinic, doctor's off ice, or some other place?

If hospital:
Is this an outpatient clinic or the emergency room?

If clinic:
Is this a hospital outpatient clinic, a company clinic, or some other kind of clinic?

1992

Variable: Have regular source of care
Section O. Access to Medical Care

Question 1a. Is there one particular clinic, health center, doctor's office or other place that you usually go if you are sick or need advice about your health?

Variable: Type of place of regular source of care
If yes to question 1a:
Question 3. What type of place is it - a doctor's office, a hospital, a clinic, or some other place?
If hospital: Do you usually go to an outpatient clinic or an emergency room?
If clinic: Is this a public health clinic?
If name given, record name:
Is this an HMO, a clinic, a doctor's office or some other place?

Variable: Reason why don't have regular source of care
If no to question 1a:
Question 2a. Which of these is the Main reason you do not have a particular place or person you usually go to?
1) I have two or more usual doctors or places depending on what is wrong
2) I haven't needed a doctor / Don't have a doctor
3) My previous doctor is no longer available
4) No care is available / care is too far away
5) I haven't been able to find the right doctor
6) I don't have insurance / can't afford it
8) Other reason

Appendix 1 (cont'd)

To calculate current smoker:
Section T. Smoking Habits

Question 1.
Have you smoked at least 100 cigarettes in your entire life?

Question 3.
Do you smoke cigarettes now?

If yes to question 3:
Question 4.
Do you smoke cigarettes every day or some days?

If no to question 3:
Question 5.
Do you smoke cigarettes "not at all" or "some days"?

Current smokers were those that answered yes to question 3 and some days to question 5.

Section U. Current Smoker

Variable: Seen MD in past 12 months
Question 14a
In the past year have you seen a medical doctor?

Variable: Advised to quit smoking by MD in past 12 months
Question 14b
During the past year did any medical doctor advise you to stop smoking?

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